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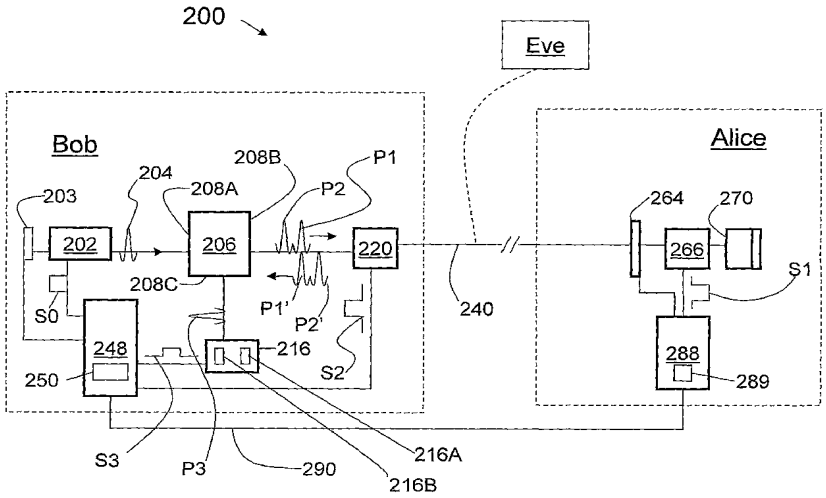
(54) Title: AUTOCALIBRATION FOR QKD SYSTEMS



(57) Abstract: A method of autocalibrating a quantum key distribution (QKD) system (200) is disclosed. The QKD system includes a laser ((202) that generates photon signals in response to a laser gating signal (S0) from a controller (248). The method includes first performing a laser gate scan (304) to establish the optimum arrival time (T_{MAX}) of the laser gating signal corresponding to an optimum- e.g., a maximum number of photon counts (N_{MAX})-- from a single-photon detector (SPD) unit (216) in the QKD system when exchanging photon signals between encoding stations (Alice and Bob) of the QKD system. Once the optimal laser gating signal arrival time (T_{MAX}) is determined, the laser gate scan is terminated and a laser gate dither process (308) is initiated. The laser dither involves varying the arrival time (T) of the laser gating signal around the optimum value of the arrival time T_{MAX}. The laser gate dither provides minor adjustments to the laser gating signal arrival time to ensure that the SPD unit produces an optimum (e.g., maximum) number of photon counts.

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